

The French Energy Regulatory Commission (CRE) consults market players.

PUBLIC CONSULTATION NO. 2023-05 OF 15 JUNE 2023 ON MECHANISMS FOR MANAGING SOUTH TO NORTH CONGESTIONS ON THE GAS TRANSMISSION NETWORKS

The single market area for gas in France, *Trading Region France* (TRF), came into operation on 1 November, 2018, replacing the two previous marketplaces, PEG Nord and *Trading Region South* (TRS). It has enabled the creation of a single price for all French consumers, access to varied and competitive sources of supply depending on global market configurations, and the strengthening of the liquidity and attractiveness of the French gas market.

The deliberations of 26 October 2017¹, 24 July 2018², 29 May 2019³, 12 December 2019⁴ and 13 December 2022⁵ set out the implementation procedures and operating rules for the single gas market area in France.

The sharp reduction in Russian gas exports since the summer of 2022, following the Russian invasion of Ukraine, has led to a supply crisis in Europe. Thanks to its infrastructures, France has helped Europe to overcome this supply crisis. France has stopped receiving gas from Belgium, and has instead started exporting to Belgium, Germany and Italy thanks to its diversified sources of supply (imports of Norwegian gas at the Dunkirk network interconnection point (IP), of liquefied natural gas (LNG) at Fos, Montoir and Dunkirk, and from Spain at Pirineos).

However, two episodes of sharply reduced flows at the Dunkirk network interconnection point (IP) from Norway resulted in a significant gas deficit in the north of France, offset by a gas surplus in the south, which is well supplied with LNG from the Fos and Montoir LNG terminals and Spain.

Although no supply disruption ultimately occurred, these two episodes tested the operating limits of the TRF and led CRE to adopt temporary emergency measures in its deliberation of 13 December 2022⁶. The existing capacity of the transmission network was not sufficient to transport all of the surplus gas from the south to the north of France, where the majority of consumers are located. During these two episodes, the Transmission System Operators (TSOs) were forced to employ all the mechanisms provided for in the rules governing the operation of the TRF in order to absorb the TRF's internal congestion.

Infrastructure operators had to cope with very significant changes in flows during the day, which could have compromised the integrity of some of their facilities (LNG terminals, compressor stations on the transmission network). From an economic point of view, the use of the locational spread, i.e. the purchase of gas in the north and the sale of gas in the south to ease congestion, cost TSOs €54.6 million over the period. In addition, TSOs have been forced on 16 occasions to apply mutualised restrictions in the south of France, i.e. to urgently reduce network injection capacity from storage facilities, imports from Spain or from LNG terminals.

CRE notes that during this period, some shippers submitted unbalanced nominations to the TSOs during the day. This behaviour has exacerbated congestion and the use of mutualised restrictions. CRE points out that it monitors the wholesale energy markets and in particular shippers' balancing activities under Regulation (EU) no. 1227/2011 of 25 October 2011 (REMIT), and that it may, pursuant to Article L.135-3, carry out the investigations necessary for the performance of its duties. The Dispute Resolution and Sanctions Committee (CoRDIS), which may in particular be called upon by the President of CRE following such investigations, may sanction breaches of REMIT pursuant to Article L 134-25 of the Energy Code.

¹ Deliberation n°2017-246 of the CRE of 26 October 2017 on the creation of a single gas market area in France on 1 November 2018

² Deliberation n°2018-171 of the CRE of 24 July 2018 on the operation of the single gas market area in France

³ Deliberation n°2019-120 of the CRE of 29 May 2019 bearing a decision to amend the deliberation of 26 October 2017 on the operation of the single gas market area in France

⁴ Deliberation n°2019-276 of the CRE of 12 December 2019 on the operation of the single gas market area in France

⁵ Deliberation no. 2022-352 of the CRE of 13 December 2022 concerning the operation of the single gas market area in France

15/06/2023

Three meetings of the *Concertation Gaz* were organised on 16 December 2022, 6 January 2023 and 2 June 2023, to discuss with the gas TSOs and market players the measures to be taken to better prevent and resolve these congestions.

The purpose of this public consultation is to consult stakeholders on the changes to be made to the existing mechanisms and on the new mechanisms for operating the TRF to limit congestion in the South to North direction and improve the resilience of the gas system. CRE considers that this work is necessary to preserve the current market model, which has proved its effectiveness over several years (in particular the single market area and the daily balancing of network users).

CRE invites interested parties to submit their contributions by 6 September 2023 at the latest.

Following this public consultation, CRE plans to deliberate as soon as possible, in particular on the changes to the TRF operating mechanisms, so that the TSOs have time to carry out the IS developments necessary for their implementation from winter 2023-24.

Paris, 15 June 2023.

For the CRE,

The Chair,

Emmanuelle WARGON

Respond to the consultation

CRE invites interested parties to submit their contribution by 6 September 2023 at the latest by entering their contribution on the platform set up by CRE: <https://consultations.cre.fr/>.

In the interests of transparency, the contributions will be published by CRE.

If your contribution includes elements that you wish to remain confidential, a version that conceals these elements must also be sent. In this case, only this version will be published. CRE reserves the right to publish information that may prove essential for the information of all stakeholders, provided that it does not fall within the scope of legally protected secrets.

In the absence of a blacked-out version, the full version is published, subject to information relating to secrets protected by law.

Interested parties are invited to respond to the questions, giving reasons for their answers.

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1. CONTEXT

1. Reducing north-to-south flows

The interruption of Russian gas exports to Europe since autumn 2022 has interrupted gas inflows from Germany at the Obergailbach interconnection point and from Belgium at the Virtualys interconnection point, putting the transmission system in an unprecedented configuration of south-to-north flows in winter.

This situation was exacerbated by two episodes of significant declines in Norwegian gas imports at the Dunkirk interconnection point, at a time when the price of gas on the French market was lower than on other markets in Northern Europe (including the UK market).

2. Consequences for the operation of the TRF in winter 2022-2023

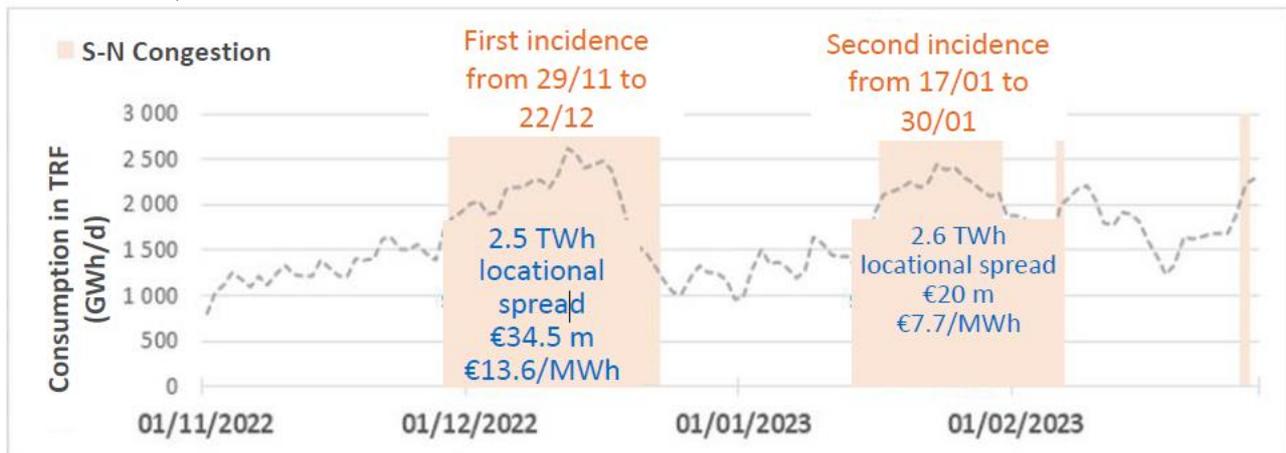
The very significant reduction in entry flows to the North, the maintenance of significant gas arrivals to the south of the TRF, combined with significant consumption generating storage withdrawal flows, led to two episodes of congestion where the so-called "South-North 3" or "SN3" limit was reached⁷.



Source: GRTgaz

In response to this situation, the TSOs have used the mechanisms for resorbing congestion in the order of precedence laid down in the CRE's previous deliberations:

- by suspending the sale of capacity still available and cutting off interruptible capacity;
- by purchasing locational spreads from market players (for a total volume of 5.1 TWh and a cost of €54.6 million);

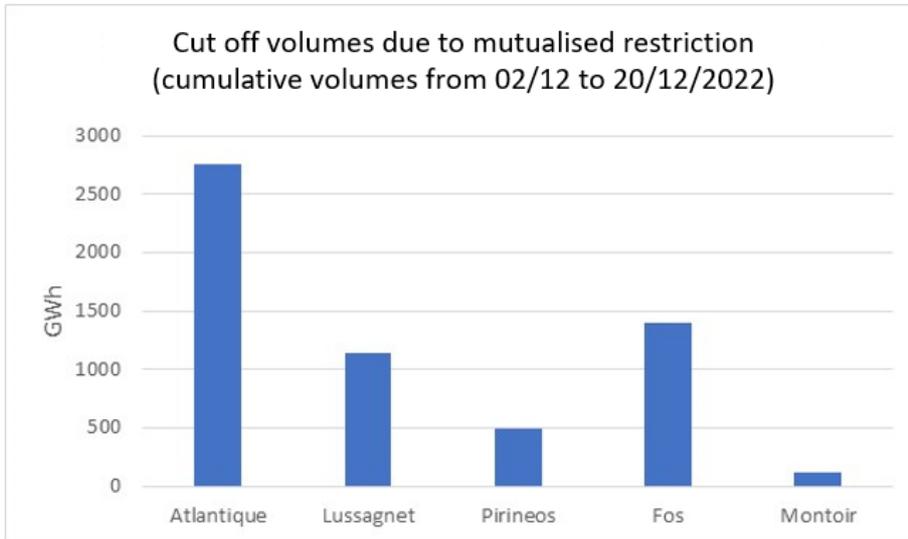


Source: GRTgaz

⁷See Appendix 2: Definitions of SN0, SN1, SN2, SN3, SN4 limits



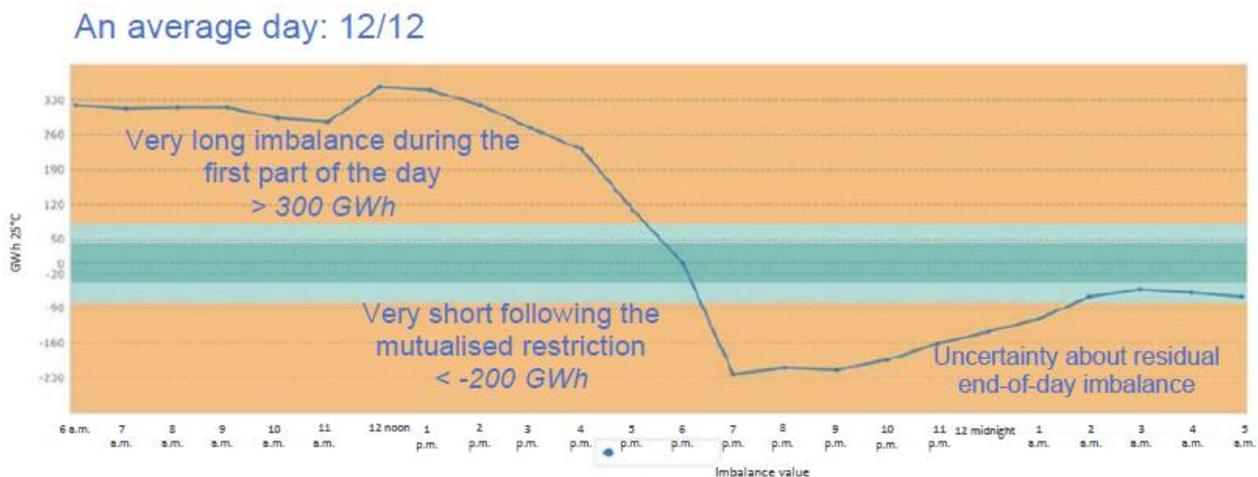
- as a last resort, by applying mutualised restrictions at the various entry points to the south of the congestion front (16 mutualised restrictions for the winter of 2022-2023, compared with 2 previously since 2018), having cut off a total of around 6 TWh of gas at all the TRF entry points concerned.



Source: GRTgaz

During the congestion episode in December 2022 in particular, very significant intraday imbalances were observed. The series of mutualised restrictions in December exacerbated this phenomenon, encouraging very unbalanced nominations during the gas day.

This behaviour is explained in particular by the desire of certain shippers to obtain additional withdrawal capacity from the Southern France storage facilities under the UIOLI (*use it or lose it*) mechanism, in order to ensure that they have a maximum quantity of gas available before a mutualised restriction is triggered in the middle of the gas day. By scheduling network entries well in excess of outgoing volumes at the start of the gas day and then scheduling network exit nominations well in excess of entry nominations in the second half of the gas day, these intraday imbalances may have exacerbated congestion and the recourse to the mutualised restrictions mechanism.



Source: GRTgaz

3. Operational and physical risks for infrastructures

GRTgaz has alerted CRE to the risk of failure at certain compressor stations, which are forced to reverse the direction of flows in the middle of the gas day to take account of these very significant intraday imbalances (very long in the first part of the day, then very short after mutualised restriction).

Elengy has also alerted CRE to the risks involved in applying shared restrictions to LNG terminals. According to Elengy, LNG terminals are not designed to withstand rapid and repeated changes in flow rates such as those caused by mutualised restrictions triggered by TSOs.

4. Consequences for security of supply

Although this operational risk did not materialise and there was no damage to infrastructures, the mutualised restrictions applied to entry points in the south of France led to a reduction in French imports, by pipeline from Spain (at the Pirineos interconnection point), and by LNG tankers at the Fos and Montoir terminals. Some LNG ships were warned very late that they could not be unloaded and had to be redirected to other destinations. Such a situation could make the French market less attractive to LNG shippers, leading to higher gas prices and poorer security of supply.

5. Occurrence of reaching the South to North limits (GRTgaz study)

GRTgaz has carried out a study (presented at the *Concertation Gaz* on June 2, 2023) to assess whether the congestion experienced in the winter of 2022-2023 could recur in the future.

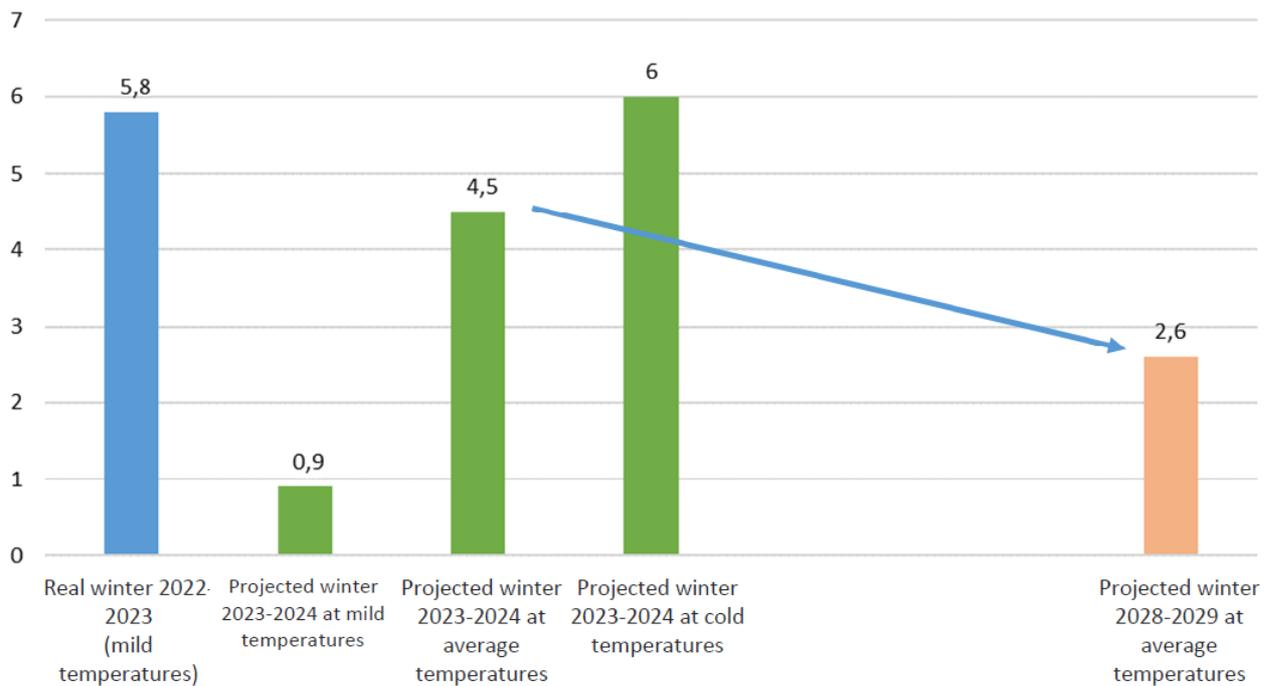
GRTgaz has simulated different winters, with different assumptions about temperature, LNG terminal utilisation rates, the Pirineos and Dunkirk interconnections for importing gas from Spain and Norway respectively, and the stock levels reached at the end of the winter. The connection of an FSRU at Le Havre has been taken into account in these simulations, as well as the recommissioning of the Ars-sur-Formans interconnection station. In this study, it was assumed that the exit points were operating at maximum capacity, with the exception of the exit to Germany at Obergailbach, which is not sold in the event of congestion.

According to these scenarios, the results obtained by GRTgaz show a level of congestion varying from 1 to 6 TWh, and of the order of 4.5 TWh for average winters.

The associated cost will depend heavily on the unit cost of locational spreads. The average cost last winter was around €10/MWh (and less than €8/MWh in January).

In this new flow configuration linked to the war in Ukraine, GRTgaz concludes that these episodes of South-to-North congestion are likely to recur regularly in the coming years. The connection of an FSRU at Le Havre, favourably located in relation to the limits of the TRF, will make a very useful contribution to the smooth running of the network, but will not be sufficient to avoid congestion. According to GRTgaz, however, the frequency and volume of congestion should decrease on average over time, due to lower consumption in France and Europe and increased biomethane production.

Congestion volumes (TWh)



Source: GRTgaz

Q1 : Do you agree with the assumptions made by GRTgaz in its study of occurrence of congestion (Appendix 3)? Do you have any comments on the results (for winter 2023-24 and/or 2028-29)?

6. CRE analysis of the French gas market

In its decision of 16 September 2021⁸, CRE reported that the TRF was operating satisfactorily and that it had achieved its objectives: the creation of a single price for all French consumers, access to varied and competitive sources of supply depending on global market configurations, and increased market liquidity and attractiveness.

The TRF has functioned satisfactorily at a time when France has stopped receiving gas from Belgium and Germany following the cessation of Russian gas imports, and has instead begun exporting to Belgium, Germany and Italy thanks to its LNG imports (over 90% of terminals used by 2022).

On the other hand, the TRF was not designed to operate without any gas entry to the north of the country. The reduction in Norwegian gas imports has imposed a new flow configuration, generating a very high level of congestion and forcing TSOs to use all the mechanisms available.

CRE remains convinced of the benefits of the French market model and considers that new mechanisms need to be implemented to ensure its resilience. To this end, the TSOs have undertaken a number of actions to ensure the smooth operation of the TRF, taking into account the new flow patterns. For example, during summer maintenance, TSOs do not restrict capacity to ensure a South-to-North flow, but only call for a locational spread in the event of congestion. Teréga is also proposing a new study on the operation of the TRF. CRE supports these initiatives.

At the same time, TSOs have formulated proposals for additional mechanisms or modifications to existing mechanisms, to be able to respond to any congestion that may be observed in the future. These proposals are presented and analysed in section 2.

Q2 : Do you agree with CRE's analysis of the operation of the TRF in a context of flows that are globally oriented North-South (before 2022)? Do you agree with CRE's analysis of the need to set up additional mechanisms or adapt existing mechanisms to deal with the congestion in the south→north observed in winter 2022-23?

⁸ Deliberation of the CRE of 16 September 2021 on the operation of the single gas market area in France

2. PRESENTATION AND ANALYSIS OF TSO PROPOSALS

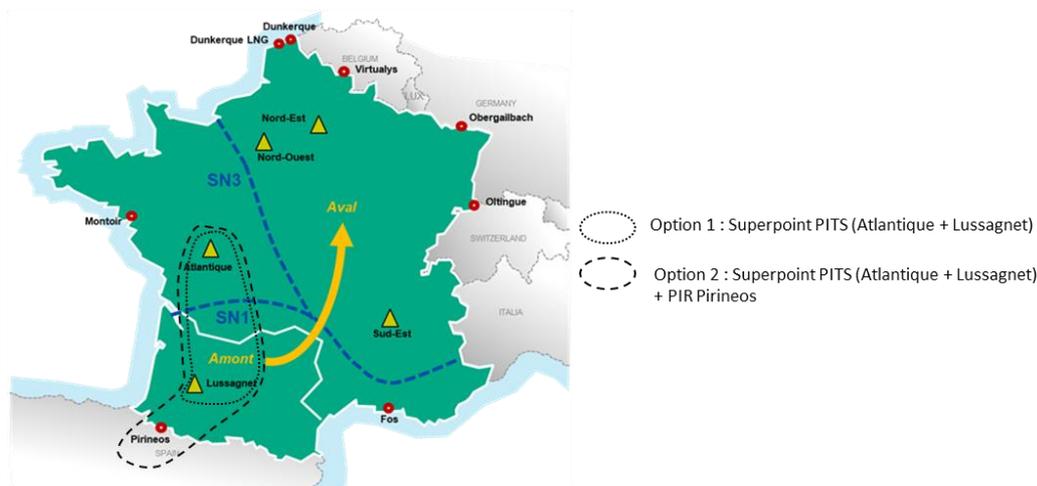
1. Measures set out in CRE deliberation no. 2022-352 of 13 December 2022 and proposal for new superpoints

On the one hand, the deliberation of December 13, 2022⁹ on the adoption of emergency mechanisms for managing SN3 congestion during the winter of 2022-2023 stipulates that GRTgaz and Teréga should only apply mutualised restrictions on entry points from LNG terminals (Fos and Montoir LNG terminal transport interface points (PITTM)) and from Spain (IP Pirineos) as a last resort, if the other mutualised restrictions are not sufficient or if the technical minimums of the other infrastructures are no longer met.

On the other hand, the existing superpoints were designed to manage congestion from north to south. The TSOs are therefore proposing the creation of new superpoints (option 1 or option 2) upstream of the South-to-North limits, which would be used in the event of a mutualised restriction upstream of the South-to-North limits. As a reminder, in the case of a mutualised restriction, the TSO can request a gas entry restriction on a superpoint, which allows the shippers themselves to choose how to distribute the restriction between the points making up the superpoint.

GRTgaz proposes options 1 and 2, and does not recommend which option should be preferred. Teréga proposes option 2:

- **Option 1:** creation of a superpoint including the Atlantique and Lussagnet transport-storage interface points (PITS) (upstream of SN3):
This superpoint is compatible with the emergency mechanism set out in CRE deliberation no. 2022-352.
or
- **Option 2:** creation of two superpoints: an upstream superpoint SN1 including the Lussagnet PITS and the Pirineos interconnection with Spain, and an upstream superpoint SN3 including the Atlantic and Lussagnet PITS and the Pirineos interconnection with Spain.
These superpoints are not compatible with the emergency mechanism set out in CRE deliberation no. 2022-352.



CRE analysis:

The emergency measure contained in CRE deliberation no. 2022-352 of 13 December 2022 makes it possible to limit the impact of congestion on gas imports via Pirineos and the Fos and Montoir LNG terminals, and to preserve the integrity of the LNG terminals. As the mutualised restrictions come to an end on 20 December 2022, it is not possible to draw any significant conclusions from this measure. Following the adoption of CRE's decision, the application of mutualised restrictions on 16, 18, 19 and 20 December 2022 still led to 214 GWh being cut off at the Fos LNG terminals. On the other hand, entries from the Montoir terminal have been maintained.

The option of a superpoint incorporating the Pirineos interconnector and the Atlantic and Lussagnet PITS is incompatible with this decision in that it does not preserve entry to the Pirineos IP. However, CRE is not opposed to the study at this stage. The Pirineos interconnector offers additional operational flexibility compared with LNG terminals.

According to GRTgaz, the gains in capacity optimisation from option 2 compared with option 1 are mainly in summer, when there are injection nominations that allow the constraint on the Pirineos entry point to be eased. In winter, the

⁹ Deliberation no. 2022-352 of the CRE of 13 December 2022 concerning the operation of the single gas market area in France

benefit of a superpoint is to provide flexibility in the distribution of the restriction between the two storage facilities, which is particularly useful given the very different characteristics of the two storage products. Options 1 and 2 meet this need.

Q3 : Are you in favour of GRTgaz's proposal to create a superpoint comprising Lussagnet and Atlantique upstream of the South/North limits, and of maintaining the order of priority for mutualised restrictions decided by CRE deliberation no. 2022-352, or do you prefer option 2, proposed by Teréga and GRTgaz, to create a Lussagnet, Atlantique and Pirineos superpoint?

2. Interruption of the "UIOLI storage" mechanism on withdrawal on the storage facilities upstream of the congestion limit

The various consultation meetings organised by the TSOs have established that one of the causes of the intraday imbalances observed during periods of congestion is over-nomination in order to obtain additional withdrawal capacity from storage facilities upstream of the congestion via the UIOLI service. As a reminder, the UIOLI mechanism allows a shipper to subscribe additional capacity over and above the capacity it has already reserved if capacity is unused by other shippers.

The two TSOs propose to suspend the UIOLI Storage mechanism on withdrawal under the following conditions:

- in the event of a red alert ¹⁰;
- on the storage facilities upstream of the congestion limit, i.e. Teréga's storage facilities in the event of congestion at the SN1 limit, or Teréga's storage facilities and Storengy's Atlantic grouping in the event of congestion at the SN3 limit;
- only in the event of South/North congestion.

UIOLI storage would be interrupted by storage operators at the request of TSOs.

GRTgaz offers an interruption on D-1 before 1 p.m., while Teréga offers an interruption during the day.

CRE analysis:

CRE considers that it is necessary to interrupt the UIOLI storage at withdrawal upstream of congestion, as a large proportion of the nomination imbalances observed last winter were caused by over-nominations made possible by this mechanism. In addition, the UIOLI mechanism necessarily generates imbalances during the day, as explained in the next section.

Q4 : Do you agree with CRE's preliminary analysis of the need to suspend the UIOLI storage at the racking point upstream of congestion? Do you have any comments on the conditions under which the UIOLI Storage will be interrupted on withdrawal, in particular GRTgaz's proposal for an interruption on D-1 before 1 p.m., and Teréga's proposal for an interruption during the day?

3. Modification of unbalanced appointments during periods of congestion

Regulation (EU) No 312/2014 ¹¹ (hereinafter Balancing Network Code) states in Article 4 that "network users are responsible for balancing their portfolios in order to minimise the number of balancing actions that need to be carried out by transmission system operators under this Regulation".

In a normal situation, TSOs have sufficient pipeline stocks to ensure that shippers' transient intraday imbalances have no significant impact on network management. In its various deliberations on the subject, CRE has therefore chosen to impose only daily balancing constraints on network users. Daily balancing offers users great management flexibility by giving them until the end of the gas day to adjust the balance of the quantities of gas they send into and out of the network.

This principle of daily balancing has been fully satisfactory for many years, both for TSOs managing their network and for market players (the current rules are based on CRE deliberation of 15 September 2016, but the principle of daily balancing has been adopted by CREs and TSOs for more than 10 years). The episodes of congestion on the

¹⁰ A continuous alert system for the state of the network "info vigilance" is published on the TSO website, for the next 5 days, for each potential front of congestion (NS1, NS2 limits...). The situation on the network is classified in one of 4 colours, representing a level of vigilance. A red alert corresponds to confirmed congestion

¹¹ Commission Regulation (EU) No 312/2014 of 26 March 2014 on the establishment of a network code on the balancing of gas transmission networks Text with EEA relevance

TRF in December 2022 and January 2023 show for the first time that this principle may prove insufficient to ensure effective and prudent management of the network.

Although the current framework does not provide for penalties to limit shippers' intraday imbalances, CRE considers that the intraday balance of the network depends first and foremost on the responsible behaviour of all shippers.

CRE also points out that it monitors the wholesale energy markets, and in particular the balancing activities of the players, under Regulation (EU) no. 1227/2011 of 25 October 2011 (REMIT), and that it may, pursuant to Article L.135-3, carry out the investigations necessary for the performance of its duties. The Dispute Resolution and Sanctions Committee (CoRDIS), which may in particular be called upon by the President of CRE following such investigations, may sanction breaches of REMIT pursuant to Article L 134-25 of the Energy Code.

CRE also points out that, under paragraph 4 of article 17 of the Balancing Network Code, transmission system operators may "modify the quantity of gas requested under a nomination and renomination only in exceptional cases and in emergency situations that clearly endanger the safety and stability of the network".

Teréga proposes to step up its preventive and anticipatory commercial actions with shippers during periods of congestion when their intraday imbalances create and/or exacerbate congestion. Teréga also proposes to specify and inform the market of the circumstances most likely to lead to a change in appointments, in particular:

- in the event of a red alert;
- when the long TRF imbalance is greater than 150 GW.h. This threshold of 150 GW.h could be adjusted as necessary by the TSOs.

Teréga considers it necessary to apply the changes to the appointments, taking into account the specific characteristics of the network users' customer portfolios:

- shippers delivering to consumers in France could have their nominations for entry upstream of the limit corrected when their intraday imbalance is long, i.e. too much gas is nominated for entry, and exceeds a threshold ranging from 10 GW.h to 30 GW.h depending on the size of their portfolio;
- the other shippers, who in principle should not have any imbalance, could have their entry nominations upstream of the limit modified from 5 GWh of long imbalance.

CRE analysis:

CRE believes that it is preferable to retain the current daily balancing system, which has worked well for many years and only very exceptionally failed last winter. CRE nevertheless considers that shippers are primarily responsible for ensuring that their nominations are balanced, including during the day, in order to avoid any balancing action at the TSOs' initiative.

Without calling into question shippers' responsibility for network balancing, CRE is in favour of TSOs modifying nominations in exceptional situations or in emergency situations that clearly endanger the safety and stability of the network.

CRE considers Teréga's proposals along these lines to be good practice. Communicating to the market the conditions under which changes in nominations could occur will enable shippers to adjust their nominations themselves when the transmission system has less flexibility. At this stage, CRE considers that the thresholds proposed by Teréga can only have an indicative value and may be adjusted according to the needs of the network.

CRE is in favour of studying the differentiated application of nomination corrections to take account of the greater balancing constraints of shippers delivering to end consumers.

Lastly, CRE notes that such corrections to nominations can only be made once the UIOLI mechanisms that aggravate congestion have been suspended (by its very nature, the UIOLI mechanism leads to a theoretical imbalance, since the shipper has to over-nominate in order to obtain additional capacity).

Q5 : Do you agree with CRE's preliminary analysis that daily balancing should be maintained at this stage and that shippers have a responsibility to avoid excessive imbalances during the day? Do you agree with CRE that TSOs can change shipper nominations when network security and stability are at stake?

Q6 : Do you agree with Teréga's proposals concerning the circumstances in which such corrections could be made? Do you agree with Teréga's proposal to differentiate the threshold for applying nominations according to shippers' customer portfolios?

4. Swap storage

GRTgaz and Teréga are proposing a storage swap mechanism, which would take place in two phases.

The first phase would take place at the beginning of winter, before any congestion appears, by overfilling storage facilities located upstream of South-North congestion (Lussagnet and Atlantique), and underfilling storage facilities downstream. This mechanism would generate a difference between the actual physical stock and the customer stock located on a given storage site.

The aim is to build up a reserve of gas in the storage facilities in the north of France. In the event of congestion, the reverse movement will be carried out to relieve part of the congestion, within the limit of the quantities over-subscribed in the South before the congestion.

Phase 1: Before the period of congestion, gas is only transferred from storage facilities located upstream of south-to-north congestion to downstream storage facilities after the following priority actions have been taken:

- nominating storage users and storage operators (commercial offer realization);
- optimising gas flows from storage facilities.

The *swap* mechanism would be implemented by the storage operators and would be interruptible (including during the day in the event of renominations of storage users).

Phase 2: In the event of congestion, the reserve built up downstream would be used symmetrically to the actions in phase 1, with overdrawal from storage facilities in the north and less withdrawal from those in the south. The mechanism would be activated on D-1 for D at the request of TSOs, when they anticipate a level of congestion that cannot be resolved by stopping sales and cutting off interruptible capacity. As in phase 1, the *swap* could only be activated after the following priority actions:

- nominating storage users and storage operators;
- optimising gas flows from storage facilities.

Once again, the mechanism would be controlled by the storage operators and would be interruptible (including during the day).

With this mechanism, storage facilities will help to absorb congestion, and will consequently have less physical capacity available to respond to a call for locational spread. TSOs will adapt their demand accordingly.

These operating rules must not compromise the commercial offer of storage operators. In particular, the quantities of gas that have been mobilised by the *swap* mechanism will have to be fully returned to the original storage facilities by the end of March, so that storage operators can meet their contractual commitments and the conditions for maintaining the performance of the sites concerned.

CRE analysis:

In the case of congestion corresponding to the SN1 or SN3 limits, according to a study carried out by Storengy, it is the capacity of the storage facilities downstream of the congestion front that is the limiting factor in sizing the swap mechanism.

CRE noted that participants in the gas consultation on 2 June 2023 were concerned about the impact of the storage *swap* on the commercial offer of storage operators. CRE is in favour of cautiously sizing the volumes transferred to ensure that the commercial offer is feasible.

Pending feedback on this mechanism in 2023-2024, and in order to minimise the risk to storage operators' commercial offerings, CRE considers it appropriate to limit the storage swap experiment to Storengy's perimeter initially.

Q7 : Are you in favour of testing the swap storage mechanism proposed by GRTgaz and Teréga? Are you in favour of limiting the storage swap to the Storengy perimeter initially?

5. Opening of the UIOLI at Dunkirk network interconnection point

GRTgaz and Teréga propose that in the event of a locational spread call to absorb congestion from South to North, a UIOLI mechanism should be used to enable players to subscribe additional entry capacity at the Dunkirk interconnection point.

This would enable shippers to acquire entry capacity outside the PRISMA auctions, which have fixed selling times and do not allow major gas players from the Dunkirk interconnection point to respond optimally to calls for locational spread.

In the context of the winter of 2022-2023, the TSOs believe that this mechanism could have enabled major shippers of Norwegian gas to take account of the locational spread in addition to the PEG price before arbitrating the allocation of their flows between the various northern European markets.

CRE analysis:

This mechanism would increase the efficiency of the locational spread for South/North congestion and would prevent shippers from responding to the locational spread only on the Northern storage facilities and generating physical gas arrivals in the North. CRE is in favour of this system.

CRE also points out that the Dunkirk network interconnection point does not fall within the scope of the CAM code because this point does not connect the French transmission network to the transmission network of another Member State of the European Union. Consequently, it is possible to allocate capacity outside the PRISMA auctions on the Dunkirk network interconnection point.

Q8 : Are you in favour of the use of a UIOLI mechanism on the Dunkirk interconnection point, as proposed by GRTgaz?

6. Anticipated restriction as a last resort

Following repeated recourse to mutualised restrictions (16 times during the winter of 2022-2023), and the resulting risks to the integrity of certain gas infrastructures, GRTgaz is proposing the introduction of anticipated restrictions as a last resort.

The anticipated restriction would be effective if mutualised restrictions were triggered five days in a row. In this case:

- The market would be informed that TSOs are switching to congestion management by early restriction for as long as the system remains congested;
- A restriction would be applied the day before for the following day according to the usual rules, on Day 2pm for Day+1. The level of capacity available over the day would be the same as in the case of a mutualised restriction, by applying the order of priority defined by CRE deliberation n° 2022-352;
- At the same time, the TSOs would give shippers visibility on the possible restriction rates over the following days if the management by anticipated restriction was prolonged (these rates depend in particular on the level of consumption and LNG arrivals at Montoir and Fos);
- As soon as vigilance level D+1 turns green again, the restriction would no longer apply for the following day. The system would revert to the classic congestion management mode.

CRE analysis:

The proposed mechanisms must not reduce France's import capacity in a context of tight supply, but infrastructure security remains the priority.

Therefore, if all the planned measures fail (including mutualised restrictions), CRE considers that, as a last resort, an anticipated restriction could be possible to secure the system despite the economic impact and the heavy impact on market capacities.

Q9 : Are you in favour of the anticipated restriction mechanism as a last resort proposed by GRTgaz? Do you agree with the five-day period of mutualised restrictions in a row before an anticipated restriction is triggered?

7. Change in the calculation of the rate of mutualised restrictions on storage facilities

The mutualised restriction at the transport storage interface points (PITS) is applied to the transmission system's entry capacity, which is fixed over time. It corresponds to the theoretical maximum withdrawal capacity of the storage facilities and not to the actual withdrawal capacity, which decreases as the pressure in the reservoir decreases.

Teréga proposes to base the mutualised restriction rate applied to the PITS on the daily commercial demand, which depends on the level in stock and corresponds better to actual withdrawal capacity, rather than on the nominal subscribed capacity in order to take account of changes in storage performance depending on the level of gas in stock.

CRE analysis:

The performance profiles of the Lussagnet (Teréga) and Serène Atlantique (Storengy) storage facilities are different due to technical factors:

- Teréga's storage facilities maintain a maximum performance plateau between 100% and 45% of the useful volume, a range in which the proposed measure would not affect the mutualised restriction rate applied to the Lussagnet PITS;
- the Atlantic PITS storage facilities lose performance throughout the withdrawal period and would be subject to greater restrictions as soon as storage levels start to fall.

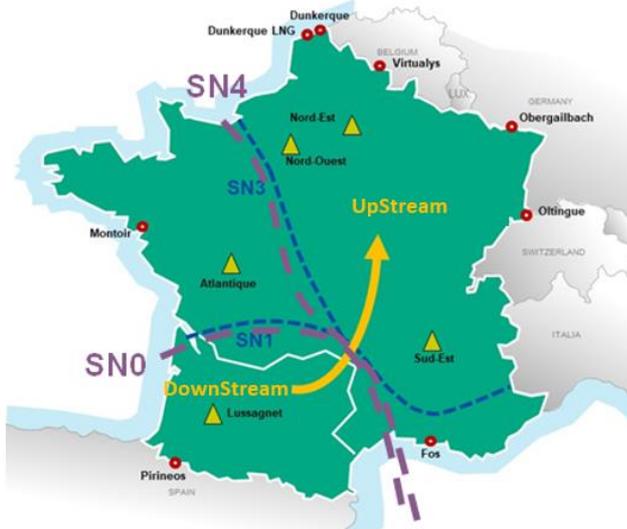
The proposed measure would greatly increase the impact of mutualised restrictions on the Atlantic PITS storage facilities. These greater restrictions could compromise Storengy's storage cycling, i.e. the ability of users to withdraw all the gas in storage before the end of March. CRE will be very attentive to feedback from stakeholders on this point before considering the adoption of this measure.

Q10 : Are you in favour of Teréga's proposed change to the calculation of the mutualised restriction rate on storage facilities?

8. TRF reference frame: addition of two new South/North limits, SNO and SN4

In addition to the SN1 and SN3 limits, which were the main congestion fronts in winter 2022-2023, two other South/North limits were highlighted: SNO (reached early 2023) and SN4 (reached late 2022).

These limits correspond respectively to the SN1 and SN3 limits, with the difference that the Fos PITTM is located downstream and not upstream.



Source: GRTgaz

GRTgaz proposes adding SNO and SN4 to the TRF residual monitored limits (publication of a vigilance bulletin).

CRE analysis:

CRE is in favour of creating these two additional limits to better reflect some of the physical network congestion observed last winter

Q11 : Are you in favour of adding the SNO and SN4 limits to the residual vigilance limits of the TRF proposed by GRTgaz?

9. Stopping sales and cutting off interruptible capacity: application on both sides of the limit in the event of South/North congestion

The mechanism currently in place of interruption of sales and of the interruptible capacity, which can be mobilised on one side of the congestion, is described in *Appendix 1*.

In the case of South/North congestion, GRTgaz proposes to apply the mechanism for stopping sales and cutting off interruptible capacity systematically on both sides of the congested limit.

In the case of South/North congestion, the mechanism would therefore systematically act on all of the following points:



Source: GRTgaz

	Congestion SN1	Congestion SN3
Interruption of "short-term" interruptible capacity	<u>Entries:</u> Pirineos <u>Exits:</u> Virtualys and Obergailbach reverse	
Interruption of interruptible PITS output capacities	<u>Exits:</u> North-East, North-West, South-East, Atlantic	<u>Exits:</u> North-East, North-West, South-East
Stopping sales, not activating the UBI ¹² "Use it and Buy it" service	<u>Entries:</u> Pirineos <u>Exits:</u> Virtualys, Obergailbach and Otingue	

CRE analysis:

CRE is in favour of this mechanism, which makes it possible to limit the use of downstream outputs to the level of firm capacity already subscribed, in order to avoid additional locational spread costs.

CRE has not identified any negative impact of this mechanism on France's gas import capacity and security of supply.

Q12 : Are you in favour of GRTgaz's proposal to stop selling capacity and to cut off interruptible capacity on both sides of the border in the event of South/North congestion? Do you agree that it is not necessary to apply this mechanism to North/South congestion, for which the TRF has worked properly as it is?

¹² UBI consists in offering for sale, on an interruptible basis, firm capacity that has been subscribed but not nominated, on a daily (*day-ahead*) or *intraday* (*within-day*) basis



3. INCREASED EXIT CAPACITY AT THE NETWORK INTERCONNECTION POINTS DOWNSTREAM OF THE SOUTH-NORTH CONGESTION

Following the cessation of Russian gas imports, the interconnection points in northern France, the IP Obergailbach with Germany, the IP Virtualys with Belgium, the IP Oltingue with Switzerland and other regional interconnection points with Switzerland have all become points for exporting gas from the French transmission system.

Congestion in the winter of 2022-2023 showed that the network is not physically able to provide additional firm export capacity in winter at any of these points for maturities greater than daily, above the capacity existing on 1 January 2023.

CRE considers that, in the short term, any new exit capacity to a neighbouring country located downstream of South-North congestion can only be marketed as interruptible capacity in winter for monthly, quarterly and annual maturities. Beyond the winter of 2023-24, the cost-benefit analysis preceding any creation of cross-border exit capacity will have to take into account the persistence of the South-to-North congestion anticipated by GRTgaz by 2028-29, its costs and the risk to security of supply.

Q13 : Do you share CRE's position on the creation of new cross-border exit capacity downstream of south-to-north congestion? For the winter of 2023-24, any new capacity could only be marketed as interruptible capacity for monthly, quarterly and annual maturities. In the longer term, the cost-benefit analysis preceding the creation of new capacity should take into account the cost of congestion and its impact on security of supply.

4. SUMMARY OF QUESTIONS

Question 1	Do you agree with the assumptions made by GRTgaz in its study of the occurrence of congestion (see Appendix 3)? Do you have any comments on the results (for winter 2023-24 and/or 2028-29)?
Question 2	Do you agree with CRE's analysis of the operation of the TRF in a context of flows that are globally oriented North-South (before 2022)? Do you agree with CRE's analysis of the need to set up additional mechanisms or adapt existing mechanisms to deal with the congestion observed in winter 2022-23 in the South→North?
Question 3	Are you in favour of GRTgaz's proposal to create a superpoint comprising Lussagnet and Atlantique upstream of the South/North limits, and of maintaining the order of priority for mutualised restrictions decided by CRE deliberation no. 2022-352, or do you prefer option 2, proposed by Teréga and GRTgaz, to create a Lussagnet, Atlantique and Pirineos superpoint?
Question 4	Do you agree with CRE's preliminary analysis of the need to suspend the UIOLI storage at the racking point upstream of congestion? Do you have any comments on the conditions under which the UIOLI Stockage will be interrupted on withdrawal, in particular GRTgaz's proposal for an interruption on D-1 before 1 p.m., and Teréga's proposal for an interruption during the day?
Question 5	Do you agree with CRE's preliminary analysis that daily balancing should be maintained at this stage and that shippers have a responsibility to avoid excessive imbalances during the day? Do you agree with CRE that TSOs can change shipper nominations when network security and stability are at stake?
Question 6	Do you agree with Teréga's proposals concerning the circumstances in which such corrections could be made? Do you agree with Teréga's proposal to differentiate the threshold for applying nominations according to shippers' customer portfolios?
Question 7	Are you in favour of testing the swap storage mechanism proposed by GRTgaz and Teréga? Are you in favour of limiting the storage swap to the Storengy perimeter initially?
Question 8	Are you in favour of the use of a UIOLI mechanism on the Dunkirk interconnection point, as proposed by GRTgaz?
Question 9	Are you in favour of the anticipated restriction mechanism as a last resort proposed by GRTgaz? Do you agree with the five-day period of mutualised restrictions in a row before an anticipated restriction is triggered?
Question 10	Are you in favour of the change to the calculation of the mutualised restriction rate on storage proposed by ?
Question 11	Are you in favour of adding the SNO and SN4 limits to the residual vigilance limits of the TRF proposed by GRTgaz?
Question 12	Are you in favour of GRTgaz's proposal to stop selling capacity and to cut off interruptible capacity on both sides of the border in the event of South/North congestion? Do you agree that it is not necessary to apply this mechanism to North/South congestion, for which the TRF has worked properly as it is?
Question 13	Do you share CRE's position on the creation of new cross-border exit capacity downstream of south-to-north congestion? For the winter of 2023-24, any new capacity could only be marketed as interruptible capacity for monthly, quarterly and annual maturities. In the longer term, the cost-benefit analysis preceding the creation of new capacity should take into account the cost of congestion and its impact on security of supply.

APPENDIX

Appendix 1: A reminder of how TRF works

TRF network limits

The Val-de-Saône and Gascogne-Midi structures correspond to an optimised investment plan, but some residual congestion continues to exist on the TRF zone, depending on the flow patterns observed. In theory, there are three types of congestion: North-South, East-West and South-North.

These congestion scenarios each correspond to different flow patterns, mainly linked to the comparative competitiveness of LNG and piped gas from Northern France.

North-South congestion corresponds to a situation in which the network is experiencing an overabundance of gas from the north. The underlying economic situation is that the price of LNG is higher than the price of gas from Russian and Norwegian fields, which translates into average or low use of LNG terminals, particularly at Fos, and an interest on the Iberian peninsula in importing gas from France. Given the configuration of entry and exit points on the French network and the history of world LNG prices, this type of congestion is the most likely.

Lastly, East-West congestion may occur if significant LNG arrivals at Fos and Dunkirk are combined with a lack of LNG at Montoir and particularly high injection levels in the storage facilities in Western France (Atlantic and South-West PITS). This type of limit, initially considered unlikely by the TSOs, has been observed this season, mainly because of high injections into Western storage facilities and maintenance work at the Montoir LNG terminal.

Depending on the levels of nominations at the various points on the network (entries and exits at the IPs, PITMs, PITs and also combined-cycle gas turbine (CCGT) plants), each of these scenarios could be affected to a greater or lesser extent. During a day of congestion, depending on the limit reached and its extent, each of these points may therefore be on the side of the network where there is a surplus of gas (upstream of the congestion front) or on the side where there is a shortage of gas (downstream of the front). The means chosen by TSOs to resolve congestion depend on the limit reached.



North → South and East → West limits



South → North limits

Mechanisms for lifting daily congestion

General principles and order of precedence of congestion relief mechanisms

Every day, if congestion occurs or is expected on the network, mechanisms are put in place by the TSOs to limit its impact on the market as a whole. Their objective is to guarantee the use of all firm capacity subscribed by shipper customers.

The choice of these mechanisms, their size, the criteria for triggering them and the conditions for remunerating the players involved are based above all on a cost-benefit balance and a market rationale.

In its deliberations of 26 October 2017 and 24 July 2018, CRE specified for each type of limit the terms and conditions for implementing these mechanisms, as well as their chronological order of precedence from the introduction of the single zone. Since then, the use of two particularly costly locational spreads to remove large-scale congestion on 25 and 26 May 2019, amounting to around €3.7 million on these two days alone, has led CRE to complete the order of precedence in its deliberation of 29 May 2019.

CRE considered that the additional flexibilities offered at the PITS, marketed in the short term and allowing injection levels higher than the nominal levels previously adopted for the merged zone, could have an impact on the smooth operation of the network in tense situations and generate significant costs for the transmission network. The current order of precedence is as follows:

	NS1	NS2	NS3	NS4
In the event of daily constraints	<ol style="list-style-type: none"> 1. If possible, implementation of interoperator mechanisms, in particular with Fluxys 2. Interruption of interruptible capacity 3. Interruption of output capacity at PITS above nominal levels 4. Non-sale of available firm capacity 5. Locational spread 	<ol style="list-style-type: none"> 1. Interruption of interruptible capacity 2. Interruption of output capacity at PITS above nominal levels 3. Non-sale of available firm capacity 4. Locational spread 		
If the above mechanisms fail	Mutualised restriction			

Thus, initially, if the interruption of interruptible capacity (sold at a lower price than firm capacity) makes it possible to ensure continuity of transmission, it is triggered as a priority over any other mechanism. The TSOs interrupt capacity as soon as the red alert is activated on Day-1 or during the day on D. Long-term interruptible capacity (Dunkirk, Oltingue, Virtualys, Obergailbach entry), firmed up at 3pm on D-1, is interrupted if the orange alert is activated before 2pm on D-1.

In a second phase, if the congestion is not resolved, the TSOs will interrupt exit capacity at the transport storage interface points (PITS) above their next nominal levels, as set out in CRE deliberation no. 2021-276 of 16 September 2021:

PITS	Perimeter	Nominal injection level GWh/day
Northwest	GRTgaz	165
North-East	GRTgaz	130
Nord B	GRTgaz	115
Atlantic	GRTgaz	340
South-East	GRTgaz	145
South West	Teréga	300

Then, if congestion persists, the sale of available firm capacity is suspended. UBI (*Use it and Buy It*) mechanisms on upstream inputs or downstream outputs are not activated so as not to exacerbate congestion.

If the congestion is still not resolved, and in order to avoid a mutualised restriction of the capacities held by the shippers, the TSOs call on a market mechanism: the locational spread. Its operating principle is described below.

Locational spread

Congestion occurs when there is a surplus of gas in the network upstream of a limit and a deficit downstream of that limit. The locational spread therefore consists of the TSO simultaneously contracting a gas sale upstream of the congestion and a gas purchase downstream. These two operations result in a reduction in the quantity passing through the congestion front.

As this market mechanism is a localised product, each purchase and sale targets a specific point in the network. The shipper, as counterparty to the transaction, must therefore modify its nomination at a given point, within a limited time, to guarantee a physical flow of gas to the expected location. Upstream of the limits, the reduction in gas in transit can be achieved by downward renomination of entries at the IPs and PITTMs, an increase in injections into storage or an upward revision of the GCCC programme. Downstream, on the other hand, the aim is to put gas

back into circulation, by reducing injections into storage and outflows to Spain, increasing entries at the PITTMs, or revising downwards the programme for a GCCC.

By way of example, the following table explains the possible movements in the event of NS3 congestion:

	Possible offer upstream of congestion	Possible offer downstream of congestion
NS3 Congestion	<ul style="list-style-type: none"> - Fewer entries at IP Taisnières H - Fewer entries at IP Obergailbach - Fewer entries at Dunkirk IP - More exits at Oltingue and Jura IPs - More injections at the North-East, North-West and South-East PITS. - Reduction in emissions at the Dunkirk LNG and Montoir PITTMs. - Increased consumption by CCGs located upstream of the congestion front. 	<ul style="list-style-type: none"> - Fewer exits at IP Pirineos - Fewer injections at the Atlantic or South-West PITS. - Increase in emissions at the Fos PITTM. - Reduction in consumption by CCGs located downstream of the congestion front.

The upstream and downstream "legs" of the spread can be contracted with a single shipper or separately with two different shippers. From an operational point of view, the selection of price and volume bids submitted by shippers is carried out in successive cycles using a robot operated by the Powernext platform. GRTgaz and Teréga have jointly defined the selection procedures for this robot.

Regardless of the leg considered, the response to the locational spread forces the player to review the trade-offs initially planned for the day (supply of gas via a IP or injection into storage to take advantage of an advantageous spread, start-up of a CCGT, etc.). The price given by shippers for each transaction will reflect this constraint.

The locational spread mechanism is an integral part of the general operation of the TRF, the priority objective of the single zone being to avoid as far as possible mutualised restrictions on capacity held by shippers when a limit could be reached.

Its annual cost may vary, however, depending on the number of days of congestion observed, the volume of congestion and the prices offered by shippers.

Appendix 2: Definitions of SN0, SN1, SN2, SN3 and SN4 limits

Limit	Upstream	Downstream
SN0	IP Pirineos PITS Lussagnet	IP Dunkirk IP Virtualys IP Obergailbach IP Oltingue PITTM Montoir Dunkirk LNG PITTM PITS North West PITS North East PITS Atlantic PITS South East Fos PITTM
SN1	IP Pirineos PITS Lussagnet Fos PITTM	IP Dunkirk IP Virtualys IP Obergailbach IP Oltingue PITTM Montoir Dunkirk LNG PITTM PITS North East PITS North West PITS South East PITS Atlantic
SN2	IP Pirineos PITS Lussagnet PITS Atlantic Fos PITTM	IP Dunkirk IP Virtualys IP Obergailbach IP Oltingue PITTM Montoir Dunkirk LNG PITTM PITS North East PITS North West PITS South East
SN3	IP Pirineos PITS Lussagnet PITS Atlantic PITTM Montoir Fos PITTM	IP Dunkirk IP Virtualys IP Obergailbach IP Oltingue Dunkirk LNG PITTM PITS North East PITS North West PITS South East
SN4	IP Pirineos PITS Lussagnet PITS Atlantic PITTM Montoir	IP Dunkirk IP Virtualys IP Obergailbach IP Oltingue Dunkirk LNG PITTM PITS North East PITS North West PITS South East Fos PITTM

Appendix 3: Proposals for improving the operation of the TRF in a South-to-North flow pattern, GRTgaz, June 2023

Appendix 4: TRF reinforcement measures, Teréga, 25 May 2023